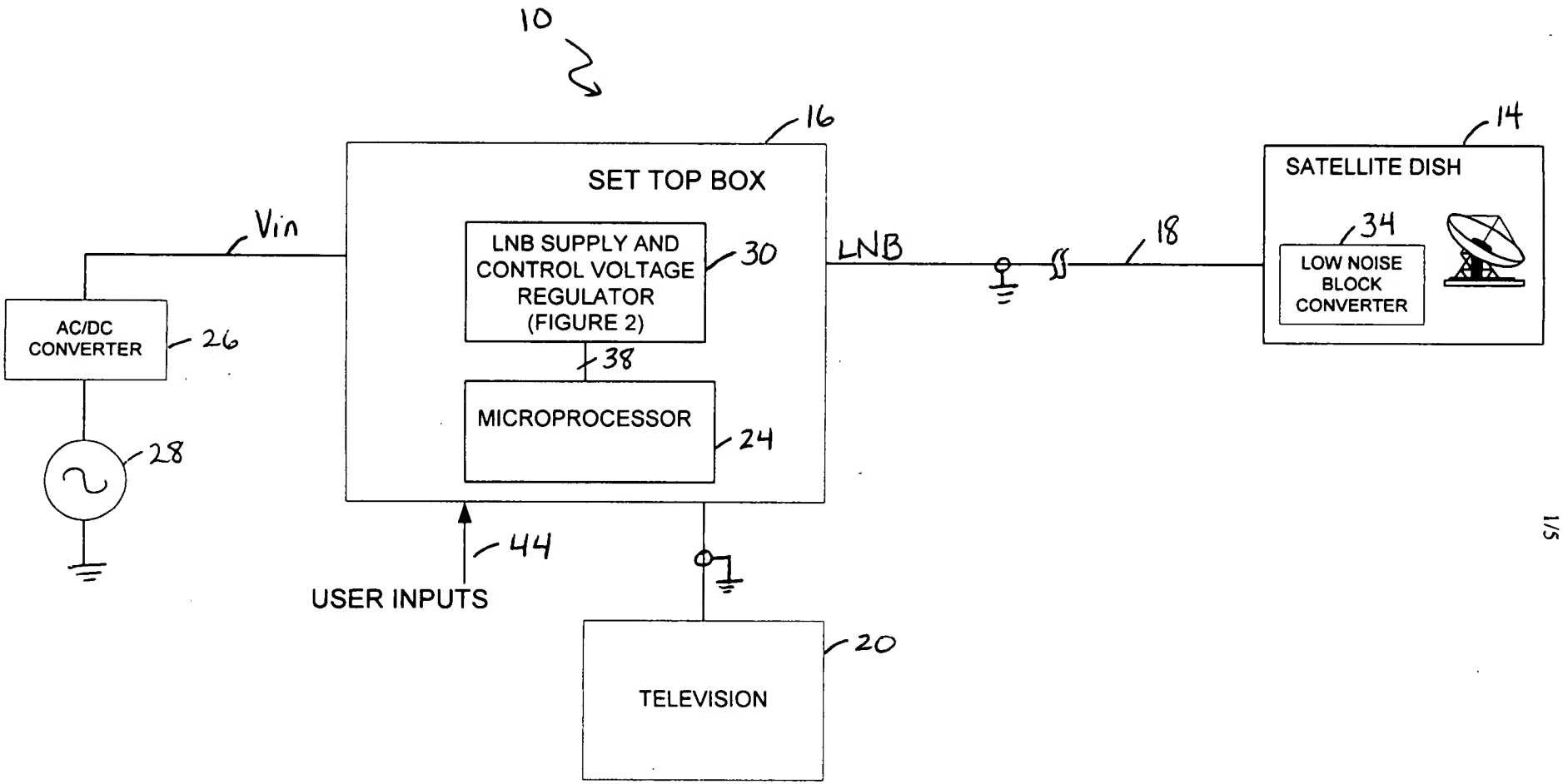
10
16
SET TOP BOX
LNB SUPPLY AND CONTROL VOLTAGE REGULATOR (FIGURE 2)
30
38
MICROPROCESSOR
24
Vin
AC/DC CONVERTER
26
28
LNB
18
14
SATELLITE DISH
34
LOW NOISE BLOCK CONVERTER
44
USER INPUTS
20
TELEVISION

FIGURE 1

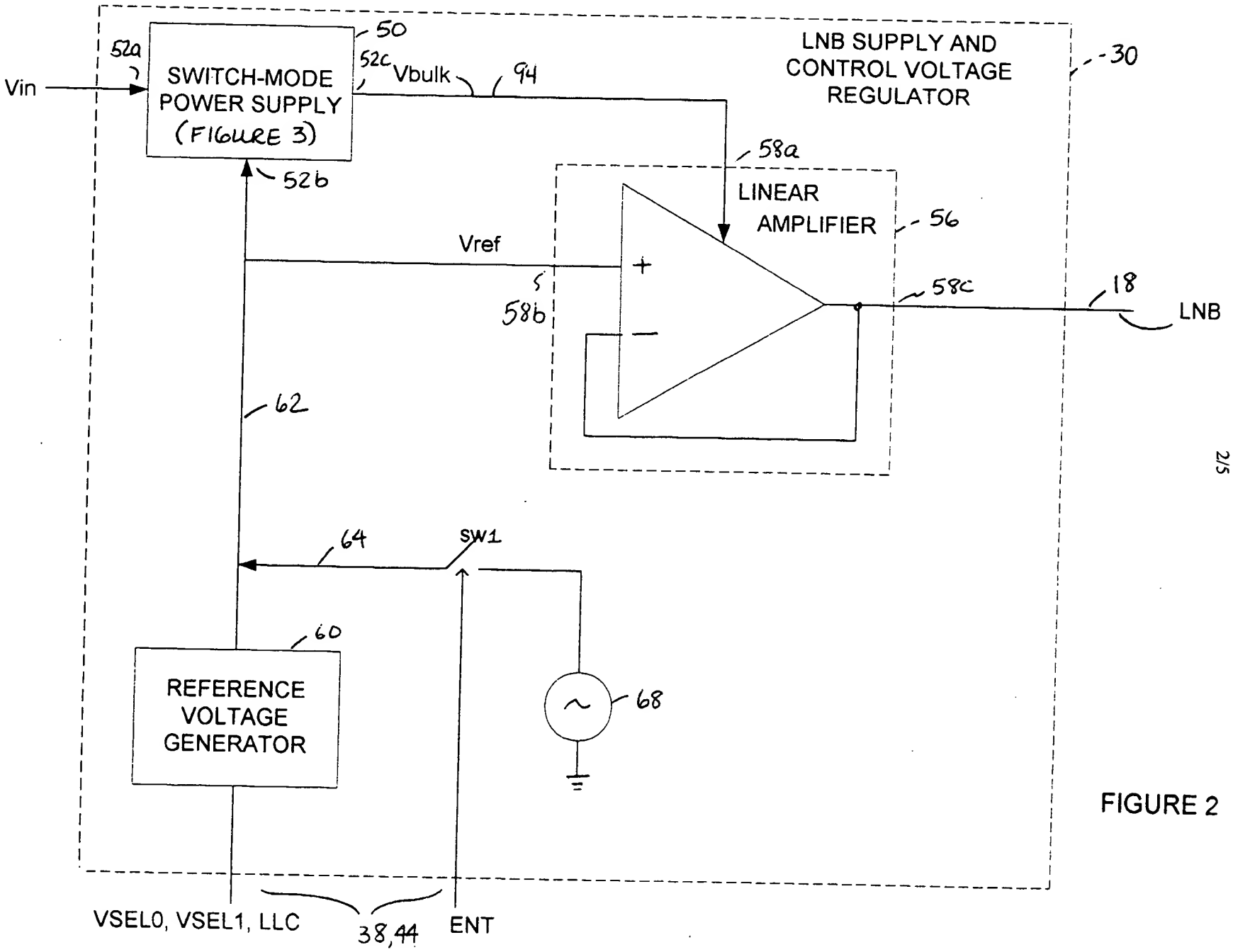
LNB SUPPLY AND CONTROL VOLTAGE REGULATOR
30
Vin
52a
SWITCH-MODE POWER SUPPLY (FIGURE 3)
50
52c
Vbulk
94
52b
58a
LINEAR AMPLIFIER
56
Vref
58b
58c
18
LNB
62
64
SW1
60
REFERENCE VOLTAGE GENERATOR
68
VSEL0, VSEL1, LLC
38,44
ENT

FIGURE 2

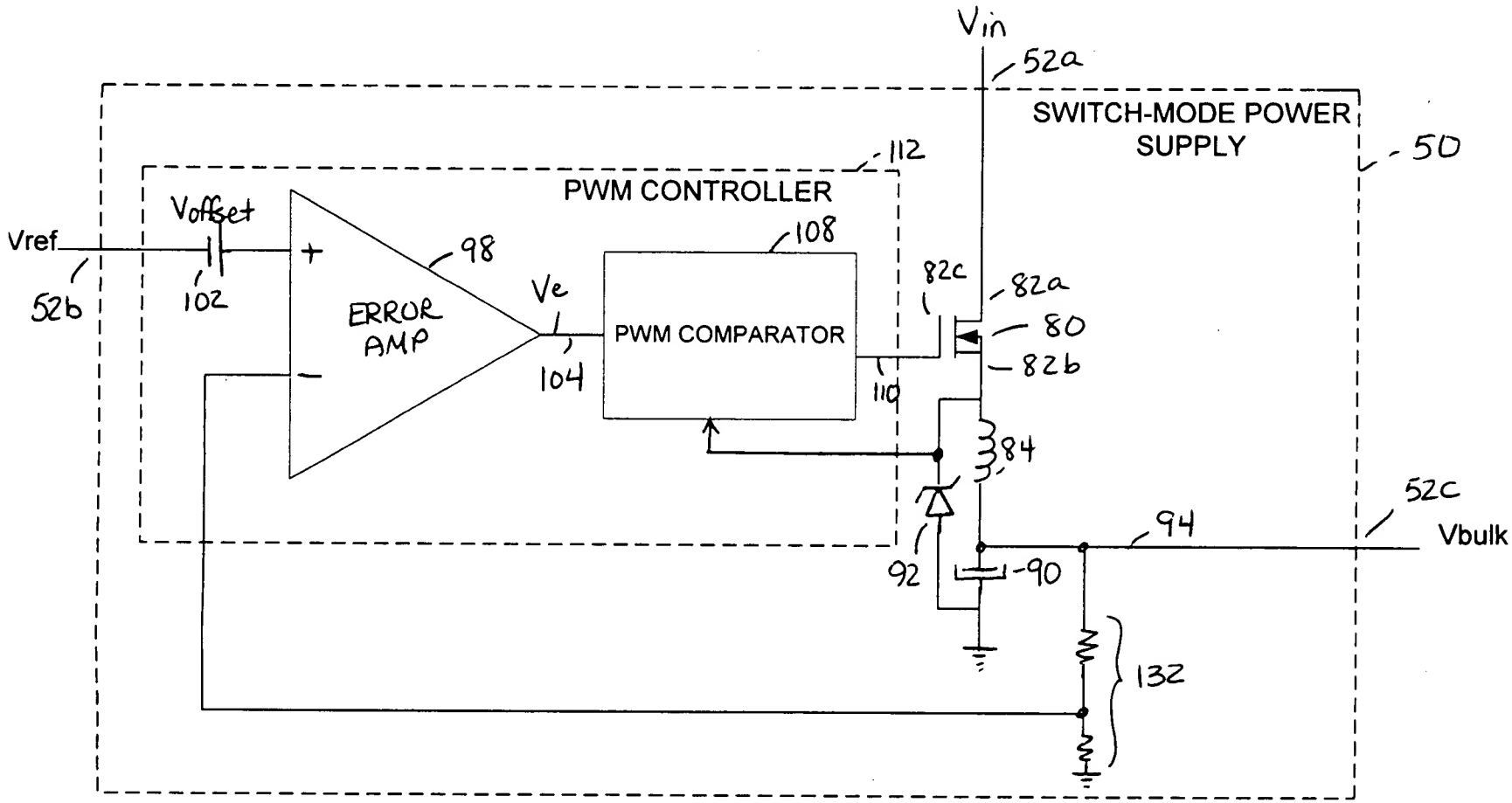
Vin
52a
SWITCH-MODE POWER SUPPLY
50
112
PWM CONTROLLER
Voffset
Vref
52b
102
98
ERROR AMP
Ve
104
108
PWM COMPARATOR
110
82c
82a
80
82b
84
92
94
52c
Vbulk
90
132

FIGURE 3

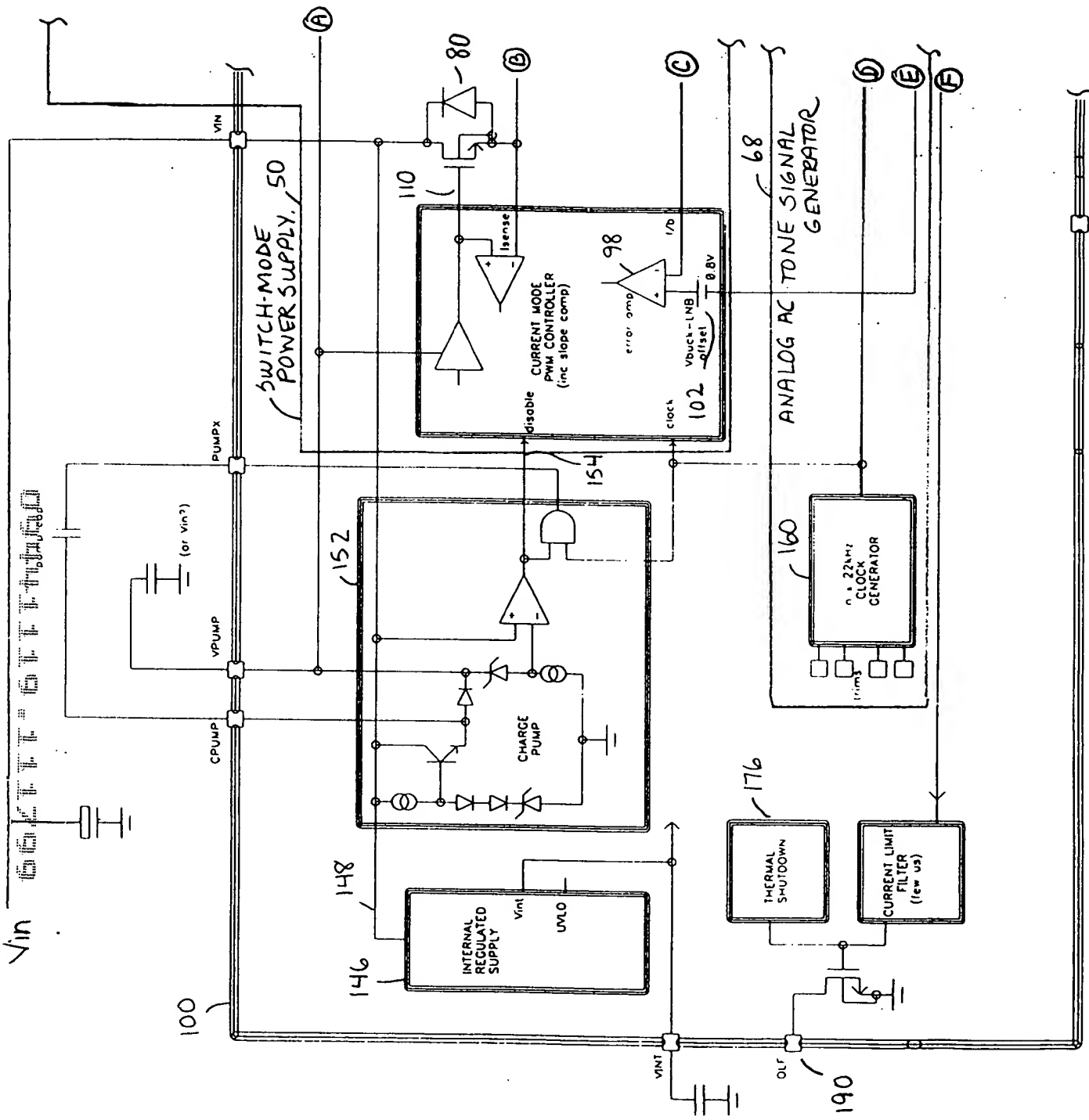
SWITCH-MODE POWER SUPPLY
50
VIN
PUMPX
VPUMP
CPUMP
(or Vin?)
80
110
CURRENT MODE PWM CONTROLLER (inc slope comp)
Isense
disable
clock
error amp
98
Vbuck-LNB offset
0.8V
102
154
152
CHARGE PUMP
148
INTERNAL REGULATED SUPPLY
Vint
UVLO
146
100
VINT
OLF
190
176
THERMAL SHUTDOWN
CURRENT LIMIT FILTER (few us)
68
ANALOG AC TONE SIGNAL GENERATOR
160
n x 22kHz CLOCK GENERATOR
trims
GND
A
B
C
D
E
F

FIGURE 4

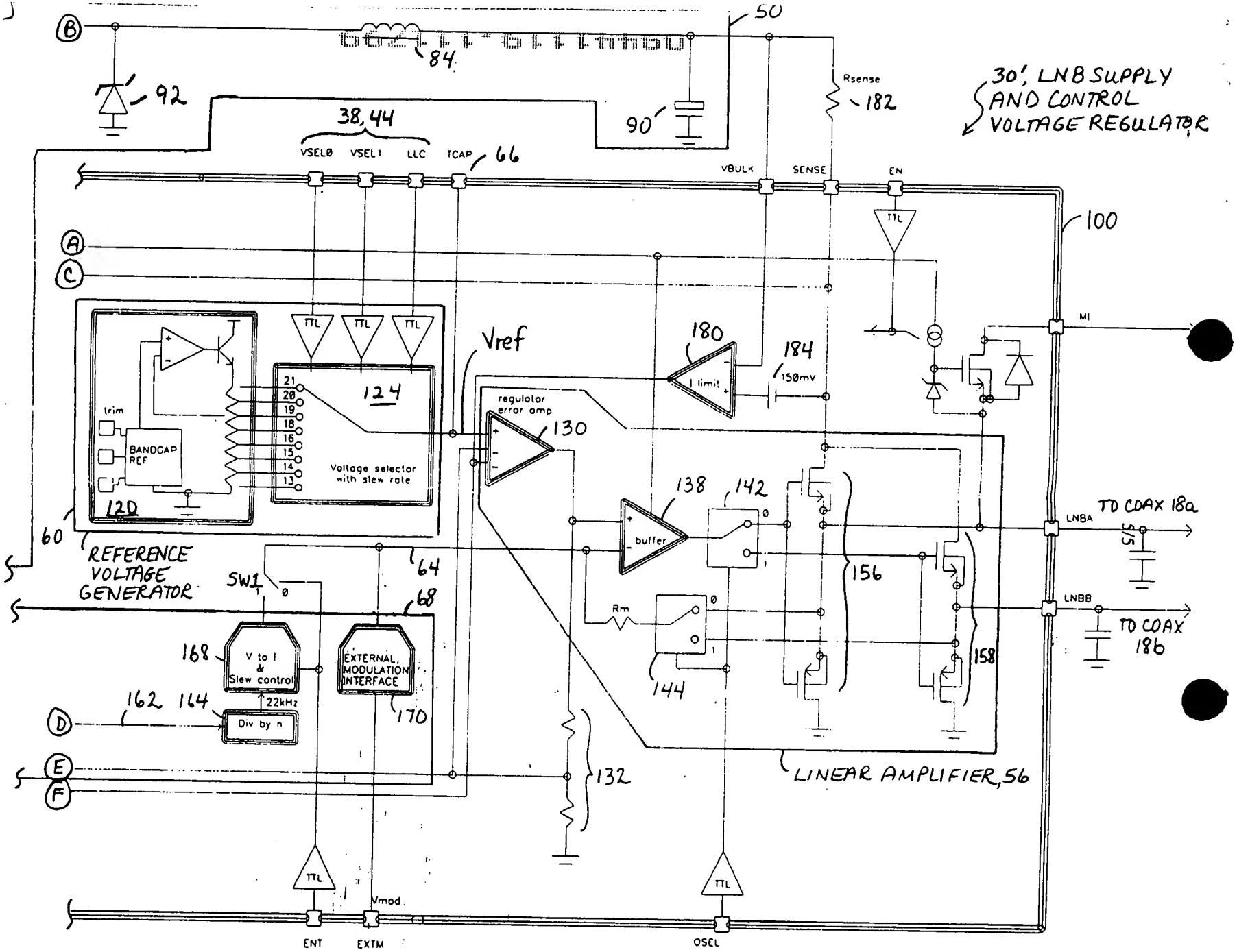
B
84
50
92
90
Rsense
182
30', LNB SUPPLY AND CONTROL VOLTAGE REGULATOR
38, 44
VSEL0
VSEL1
LLC
TCAP
66
VBULK
SENSE
EN
100
A
C
TTL
MI
180
184
150mv
I limit
Vref
124
trim
BANDGAP REF
Voltage selector with slew rate
120
regulator error amp
130
60
REFERENCE VOLTAGE GENERATOR
64
SW1
68
138
142
buffer
TO COAX 18a
LNBA
5/5
156
Rm
LNBB
TO COAX 18b
158
144
168
V to I & Slew control
EXTERNAL MODULATION INTERFACE
170
22kHz
162
164
Div by n
D
E
F
132
LINEAR AMPLIFIER, 56
ENT
EXTM
Vmod
OSEL

FIGURE 4A